SHARP

SUPPLEMENTAL SERVICE MANUAL

S6116R315EPW/



MICROWAVE OVEN

MODEL R-315EW

In the interest of user-safety the oven should be restored to its original condition and only parts identical to those specified should be used.

WARNING TO SERVICE PERSONNEL: Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock. (High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..)

This is a supplemental Service Manual for Model R-315EW. This model is quite similar to base model R-310EW. Use this supplemental manual together with the Base Model Service Manual (Refer No. is S2103R310EPW/) for complete operation, service information, etc..

TABLE OF CONTENTS

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(a) Do not operate or allow the oven to be operated with the door open.
(b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary: (1) interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.
(c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
(d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(e) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

BEFORE SERVICING

Before servicing an operative unit, perform a microwave emission check as per the Microwave Measurement Procedure outlined in this service manual.
If microwave emissions level is in excess of the specified limit, contact SHARP ELECTRONICS CORPORATION immediately @1-800-237-4277.

If the unit operates with the door open, service person should 1) tell the user not to operate the oven and 2) contact SHARP ELECTRONICS CORPORATION and The Food and Drug Administration's Center for Devices and Radiological Health immediately.

Service personnel should inform SHARP ELECTRONICS CORPORATION of any certified unit found with emissions in excess of $4mW/cm^2$. The owner of the unit should be instructed not to use the unit until the oven has been brought into compliance.

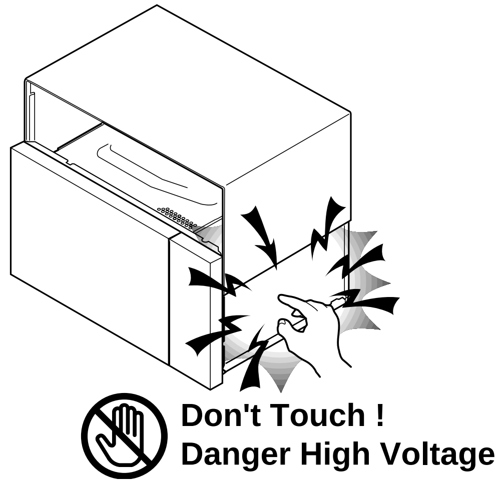
WARNING TO SERVICE PERSONNEL

Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock.

(Example)

High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..

Read the Service Manual carefully and follow all instructions.



Before Servicing

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.

WARNING: RISK OF ELECTRIC SHOCK. DISCHARGE THE HIGH-VOLTAGE CAPACITOR BEFORE SERVICING.

The high-voltage capacitor remains charged about 60 seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

Whenever troubleshooting is performed the power supply must be disconnected. It may, in some cases, be necessary to connect the power supply after the outer case has been removed, in this event,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Disconnect the leads to the primary of the power transformer.
5. Ensure that the leads remain isolated from other components and oven chassis by using insulation tape.
6. After that procedure, reconnect the power supply cord.

When the testing is completed,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Reconnect the leads to the primary of the power transformer.
5. Reinstall the outer case (cabinet).
6. Reconnect the power supply cord after the outer case is installed.
7. Run the oven and check all functions.

After repairing

1. Reconnect all leads removed from components during testing.
2. Reinstall the outer case (cabinet).
3. Reconnect the power supply cord after the outer case is installed.
4. Run the oven and check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out **Before Servicing** procedure and re-examine the connections to the component being tested.

When all service work is completed and the oven is fully assembled, the microwave power output should be checked and a microwave leakage test should be carried out.

MICROWAVE MEASUREMENT PROCEDURE

A. Requirements:

1) Microwave leakage limit (Power density limit): The power density of microwave radiation emitted by a microwave oven should not exceed 1mW/cm^2 at any point 5cm or more from the external surface of the oven, measured prior to acquisition by a purchaser, and thereafter (through the useful life of the oven), 5 mW/cm^2 at any point 5cm or more from the external surface of the oven.
2) Safety interlock switches Primary interlock relay and door sensing switch shall prevent microwave radiation emission in excess of the requirement as above mentioned, secondary interlock switch shall prevent microwave radiation emission in excess of 5 mW/cm^2 at any point 5cm or more from the external surface of the oven.

B. Preparation for testing:

Before beginning the actual measurement of leakage, proceed as follows:

1) Make sure that the actual instrument is operating normally as specified in its instruction booklet.

   Important:
   Survey instruments that comply with the requirement for instrumentation as prescribed by the performance standard for microwave ovens, 21 CFR 1030.10(c)(3)(i), must be used for testing.

2) Place the oven tray in the oven cavity.
3) Place the load of 275±15 ml (9.8 oz) of tap water initially at 20±5˚C (68˚F) in the center of the oven cavity.
   The water container shall be a low form of 600 ml (20 oz) beaker with an inside diameter of approx. 8.5 cm (3-1/2 in.) and made of an electrically nonconductive material such as glass or plastic.
   The placing of this standard load in the oven is important not only to protect the oven, but also to insure that any leakage is measured accurately.
4) Set the cooking control on Full Power Cooking Mode
5) Close the door and select a cook cycle of several minutes. If the water begins to boil before the survey is completed, replace it with 275 ml of cool water.

C. Leakage test:

Closed-door leakage test (microwave measurement)

1) Grasp the probe of the survey instrument and hold it perpendicular to the gap between the door and the body of the oven.
2) Move the probe slowly, not faster than 1 in./sec. (2.5 cm/sec.) along the gap, watching for the maximum indication on the meter.
3) Check for leakage at the door screen, sheet metal seams and other accessible positions where the continuity of the metal has been breached (eg., around the switches, indicator, and vents).
   While testing for leakage around the door pull the door away from the front of the oven as far as is permitted by the closed latch assembly.
4) Measure carefully at the point of highest leakage and make sure that the highest leakage is no greater than 4mW/cm^2.

NOTE: After servicing, record data on service invoice and microwave leakage report.

SERVICE MANUAL

SHARP

MICROWAVE OVEN

R-315EW

FOREWORD

This Manual has been prepared to provide Sharp Electronics Corp. Service Personnel with Operation and Service Information for the SHARP MICROWAVE OVEN, R-315EW.

The model R-315EW is quite similar to base model R-310EW (Refer No. is S2103R310EPW/).

It is recommended that service personnel carefully study the entire text of this manual and the base model's manual so that they will be qualified to render satisfactory customer service.

Check the interlock switches and the door seal carefully. Special attention should be given to avoid electrical shock and microwave radiation hazard.

WARNING

Never operate the oven until the following points are ensured.
(A) The door is tightly closed.
(B) The door brackets and hinges are not defective.
(C) The door packing is not damaged.
(D) The door is not deformed or warped.
(E) There is no other visible damage with the oven.

Servicing and repair work must be carried out only by trained service personnel.

DANGER

Certain initial parts are intentionally not grounded and present a risk of electrical shock only during servicing.
Service personnel - Do not contact the following parts while the appliance is energized;
High Voltage Capacitor, Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness;
If provided, Vent Hood, Fan assembly, Cooling Fan Motor.

All the parts marked “*” on parts list are used at voltages more than 250V.

Removal of the outer wrap gives access to voltage above 250V.

All the parts marked “Δ” on parts list may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

SHARP ELECTRONICS CORPORATION

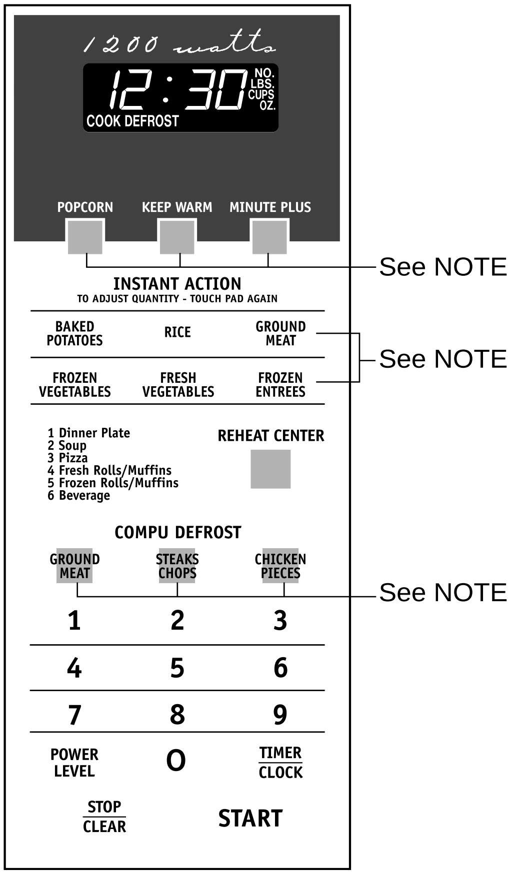
SHARP PLAZA, MAHWAH,
NEW JERSEY 07430-2135

PRODUCT DESCRIPTION

SPECIFICATIONS

ITEM	DESCRIPTION
Power Requirements	120 Volts / 14.2 Amperes 60 Hertz Single phase, 3 wire grounded
Power Output	1200 watts (IEC TEST PROCEDURE) Operating frequency of 2450MHz
Case Dimensions	Width 20-1/2" Height 11-7/8" Depth 17-1/8"
Cooking Cavity Dimensions 1.2 Cubic Feet	Width 14-3/4" Height 8-3/4" Depth 15-3/4"
Control Complement	Touch Control System Clock (1:00 - 12:59) Timer (0 - 99 min. 99 seconds) Microwave Power for Variable Cooking Repetition Rate; P-HI .... Full power throughout the cooking time P-90 .... approx. 90% of Full Power P-80 .... approx. 80% of Full Power P-70 .... approx. 70% of Full Power P-60 .... approx. 60% of Full Power P-50 .... approx. 50% of Full Power P-40 .... approx. 40% of Full Power P-30 .... approx. 30% of Full Power P-20 .... approx. 20% of Full Power P-10 .... approx. 10% of Full Power P-0 .... No power throughout the cooking time POPCORN pad, KEEP WARM pad, MINUTE PLUS pad INSTANT ACTION pads, REHEAT CENTER pad COMPU DEFROST pads, Number selection pads POWER LEVEL pad, TIMER/CLOCK pad STOP/CLEAR pad, START pad
Oven Cavity Light	Yes
Safety Standard	UL Listed FCC Authorized DHHS Rules, CFR, Title 21, Chapter 1, Subchapter J

TOUCH CONTROL PANEL



NOTE:
The directed features are disabled after three minutes when the oven is not in use. These features are automatically enabled when the door is opened and closed or the STOP/ CLEAR pad is pressed.

SCHEMATIC

NOTE: CONDITION OF OVEN

1. DOOR CLOSED
2. CLOCK APPEARS ON DISPLAY

NOTE: "★" indicates components with potential above 250V.

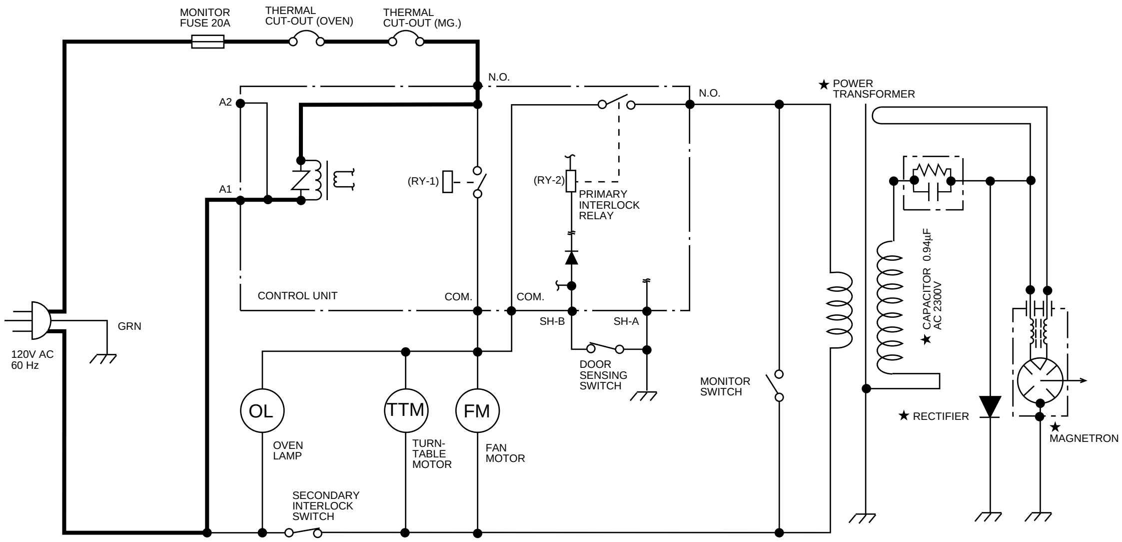


Figure O-1. Oven Schematic-Off Condition

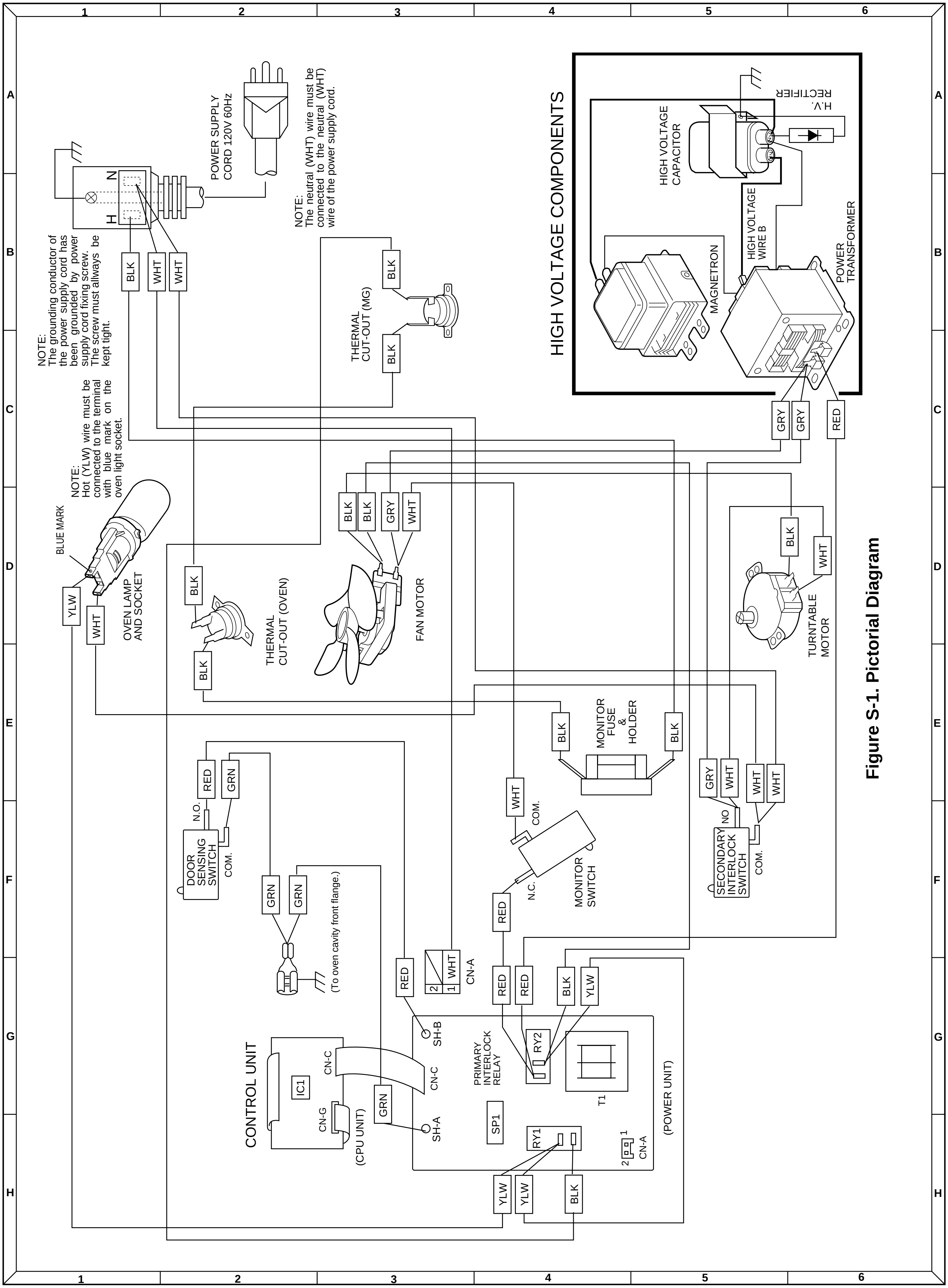


Figure S-1. Pictorial Diagram

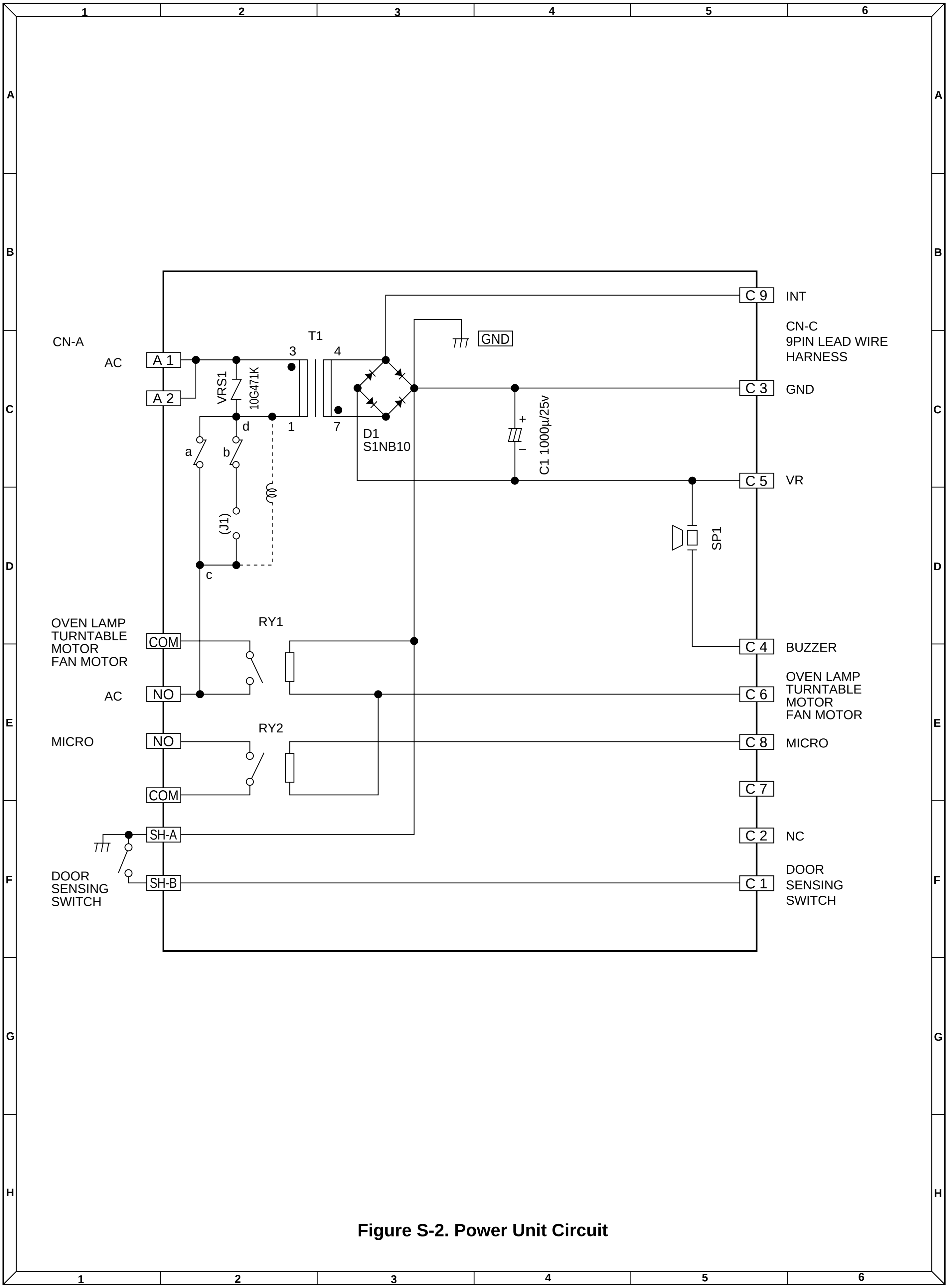


Figure S-2. Power Unit Circuit

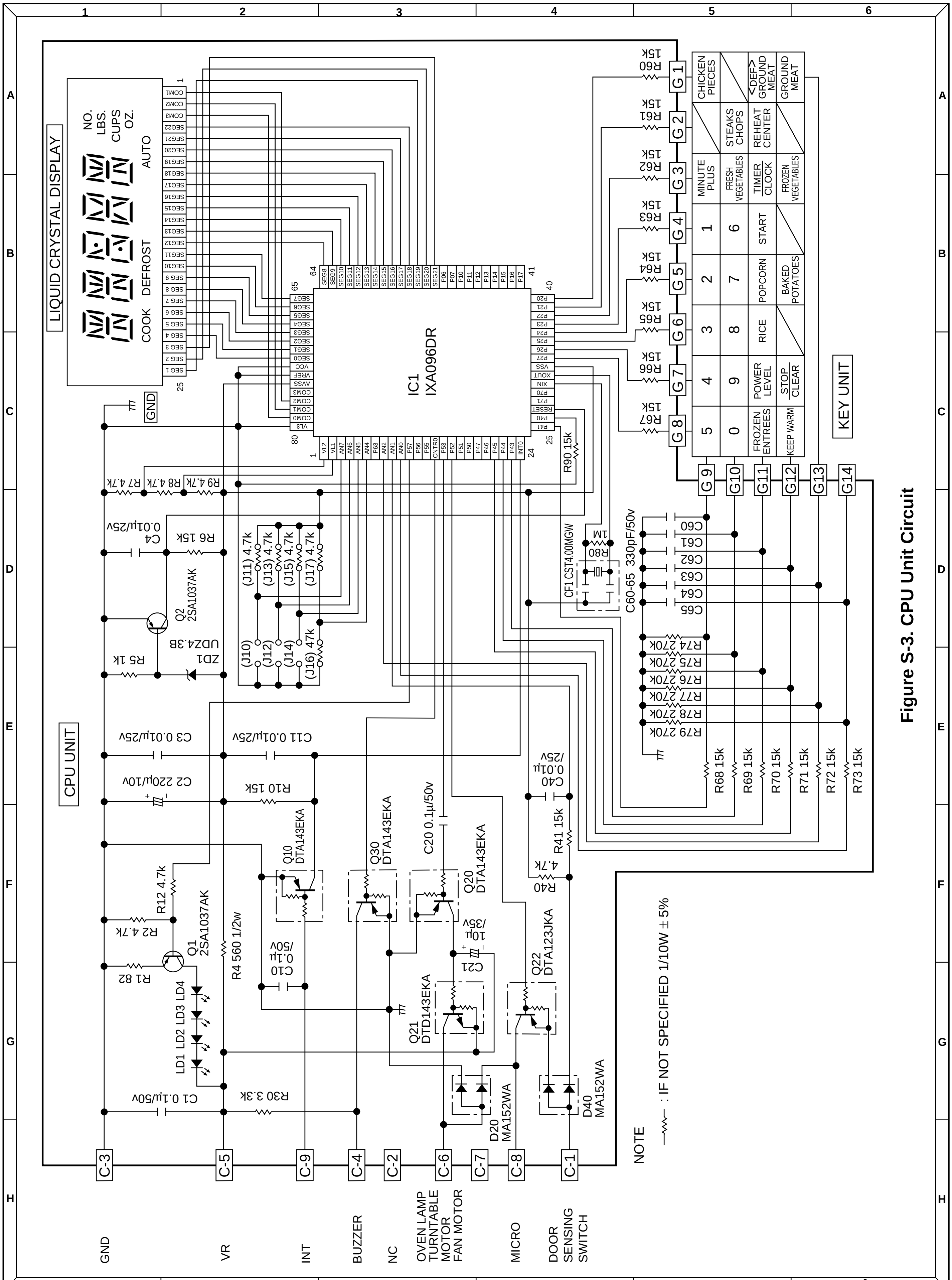


Figure S-3. CPU Unit Circuit

PARTS LIST

Note: The parts marked "Δ" may cause undue microwave exposure.
The parts marked "*" are used in voltage more than 250V.

ELECTRIC PARTS

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
	1- 1	QSW-MA147WRZZ	2nd interlock switch/door sensing switch	2	AG
	1- 1	QSW-MA137WRE0	2nd interlock switch/door sensing switch (Interchangeable)	2	AH
	1- 2	QFSHDA009WRE0	Fuse holder	1	AH
	1- 3	FFS-BA021WRK0	Monitor fuse 20A and monitor switch (V-16G-2C25) assembly	1	AL
	1- 3	FFS-BA023WRK0	" " (AM51620C53Y1) assembly (Interchangeable)	1	AS
	1- 4	RTHM-A116WRE0	Thermal cut-out 125 deg.	1	AK
	1- 4	RTHM-A078WRE0	Thermal cut-out 125 deg. (Interchangeable)	1	AL
	1- 5	FACCDA085WREZ	Power supply cord	1	AQ
	1- 5	FACCDA083WRE0	Power supply cord (Interchangeable)	1	AQ
*	1- 6	FH-DZA088WRK0	High voltage rectifier assembly	1	AP
*	1- 7	RC-QZA287WRZZ	High voltage capacitor	1	AU
*	1- 7	RC-QZA268WRZZ	High voltage capacitor (Interchangeable)	1	AS
*Δ	1- 8	RV-MZA291WRE0	Magnetron	1	BH
*Δ	1- 8	RV-MZA295WRE0	Magnetron (Interchangeable)	1	BF
	1- 9	RMOTEA383WRE0	Fan motor	1	AV
	1-10	QSOCLA021WRE0	Oven lamp socket	1	AH
	1-11	RLMPTA081WRZZ	Oven lamp	1	AK
	1-11	RLMPTA068WRE0	Oven lamp (Interchangeable)	1	AG
	1-12	RMOTDA186WRE0	Turntable motor	1	AW
	1-12	RMOTDA211WRE0	Turntable motor (Interchangeable)	1	AS
	1-13	RTHM-A120WRE0	Thermal cut-out 145 deg.C	1	AH
	1-13	RTHM-A080WRE0	Thermal cut-out 145 deg.C(Interchangeable)	1	AP
*	1-14	RTRN-A635WRZZ	Power transformer	1	BQ

CABINET PARTS

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
2- 1	GCABUA821WRPZ	Outer case cabinet	1	
2- 2	GDAI-A316WRW0	Bottom plate	1	AX
2- 3	GLEGPA074WRE0	Foot	2	AC
2- 4	GLEGPA077WRF0	Leg	1	AH

CONTROL PANEL PARTS

REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
3- 1	DPWBFC021WRKZ	Power unit	1	BA
3- 1A	QCNCMA446DRE0	2-pin connector (CN-A)	1	AC
3- 1B	FW-VZA250DRE0	9pin wire harness (CN-C)	1	AW
3- 1C	FW-VZA195DRE0	Switch harness A (SH-A)	1	AD
3- 1D	FW-VZA256DREZ	Switch harness B (SH-B)	1	AF
C1	VCEAB31EW108M	Capacitor 1000 uF 25V	1	AE
D1	RSRCDA013DRE0	Diode bridge (S1NB10)	1	AG
RY1	RRLY-A094DRE0	Relay (OMIF-S-112LM)	1	AN
RY2	RRLY-A114DRE0	Relay (DU12D1-1P(M)-R)	1	AN
SP1	RALM-A014DRE0	Buzzer (PKM22EPT)	1	AG
T1	RTRNPA110DRE0	Transformer	1	AP
VRS1	RH-VZA032DRE0	Varistor (10G471K)	1	AE
3- 2	DPWBFC163WRKZ	CPU unit	1	BN
3- 3	FPNLCB583WRKZ	Control panel frame with key unit	1	BA
3- 3-1	FUNTKB079WREZ	Key unit	1	AW
3- 4	PSHEPA588WRE0	LED sheet	1	AE
3- 5	LHLD-A205WRF0	LCD holder	1	AF
3- 6	XEPSD30P08XS0	Screw; 3mm x 8mm	4	AA

OVEN PARTS

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
	4- 1	PDUC-A724WRF0	Air separater	1	AU
	4- 2	PPACGA084WRF0	TTM packing	1	AF
Δ	4- 3	PHOK-A116WRFZ	Latch hook	1	AH
	4- 4	LBNDKA099WRW0	Capacitor holder	1	AD
	4- 5	NFANJA029WRE0	Fan blade	1	AL
	4- 6	PDUC-A728WRW0	Fan duct	1	AT
Δ	4- 7	*************	Oven cavity **(Not a replaceable part)**	1	--
	4- 8	LANGFA194WRW0	Chassis support	1	AU
	4- 9	PCUSGA551WREZ	Cushion	1	AC
	4-10	LANG-A079WRWZ	Air guide	1	AF
	4-11	LANG-A078WRWZ	Barrier	1	AF
	4-12	NCPL-A053WRFZ	Coupling	1	AE
	4-13	PCUSUA511WRP0	Cushion	1	AC
	4-14	PCOVPA349WRE0	Waveguide cover	1	AE
	4-15	PCUSGA339WRP0	Cushion	2	AG
	4-16	PCUSGA533WRP0	Cushion	1	AD
	4-17	PCUSUA512WRP0	Cushion	1	AB

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
	4-18	PCUSGA529WRP0	Cushion	1	AC
	4-19	PCUSUA186WRP0	Cushion	1	AC
	4-20	PCUSUA157WRP0	Cushion	1	AC
	4-21	PCUSUA212WRP0	Cushion	2	AB
	4-22	PCUSUA474WRP0	Cushion	2	AC
	4-22	PCUSUA576WRPZ	Cushion	1	AE

DOOR PARTS

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
Δ	5- 1	FDORFA332WRT0	Door panel	1	BD
	5- 2	PSHEPA382WRE0	Sealer film	1	AH
Δ	5- 3	GWAKPA790WRRZ	Door frame	1	AZ
	5- 4	HPNL-A742WRRZ	Door screen	1	AS
Δ	5- 5	LSTPPA193WRFZ	Latch head	1	AE
	5- 6	MSPRTA187WRE0	Latch spring	1	AC
	5- 7	XEPSD40P08000	Screw : 4mm x 8mm	6	AA
	5- 8	PCUSUA461WRP0	Cushion	1	AB
	5- 9	PCUSUA553WRPZ	Cushion	2	AC
	5-10	PCUSUA554WRPZ	Cushion	2	AB
	5-11	GCOVHA417WRFZ	Choke cover	1	AG

MISCELLANEOUS

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
	6- 1	FROLPA079WRK0	Turntable support	1	AQ
	6- 2	NTNT-A079WRF0	Turntable tray	1	AR
	6- 3	FW-VZB787WREZ	Main wire harness	1	AU
*	6- 4	QW-QZA242WRZZ	High voltage wire B	1	AF
	6- 5	PZET-A012WRE0	Terminal insulator	1	AB
	6- 6	TCAUAA265WRRZ	DHHS caution label	1	AC
	6- 7	TCAUAA254WRR0	Monitor caution label	1	AC
	6- 8	TINSEA908WRRZ	Instruction book	1	AN

SCREWS,NUTS AND WASHERS

	REF. NO.	PART NO.	DESCRIPTION	Q'TY	CODE
	7- 1	XHPSD40P08K00	Screw : 4mm x 8mm	5	AA
	7- 2	XHPSD30P06000	Screw : 3mm x 6mm	1	AA
	7- 3	XHTSD40P08RV0	Screw : 4mm x 8mm	4	AA
	7- 4	XHTSD40P12RV0	Screw : 4mm x 12mm	1	AA
	7- 5	XOTSD40P12RV0	Screw : 4mm x 12mm	3	AA
	7- 6	XOTSD40P12000	Screw : 4mm x 12mm	17	AA
	7- 7	XOTSE40P08000	Screw : 4mm x 8mm	1	AA
	7- 8	LX-CZA070WRE0	Special screw (Torx tamper proof screw)	2	AC
	7- 9	LX-CZ0052WRE0	Special screw	2	AA
	7-10	XHPSD40P08000	Screw : 4mm x 8mm	4	AA

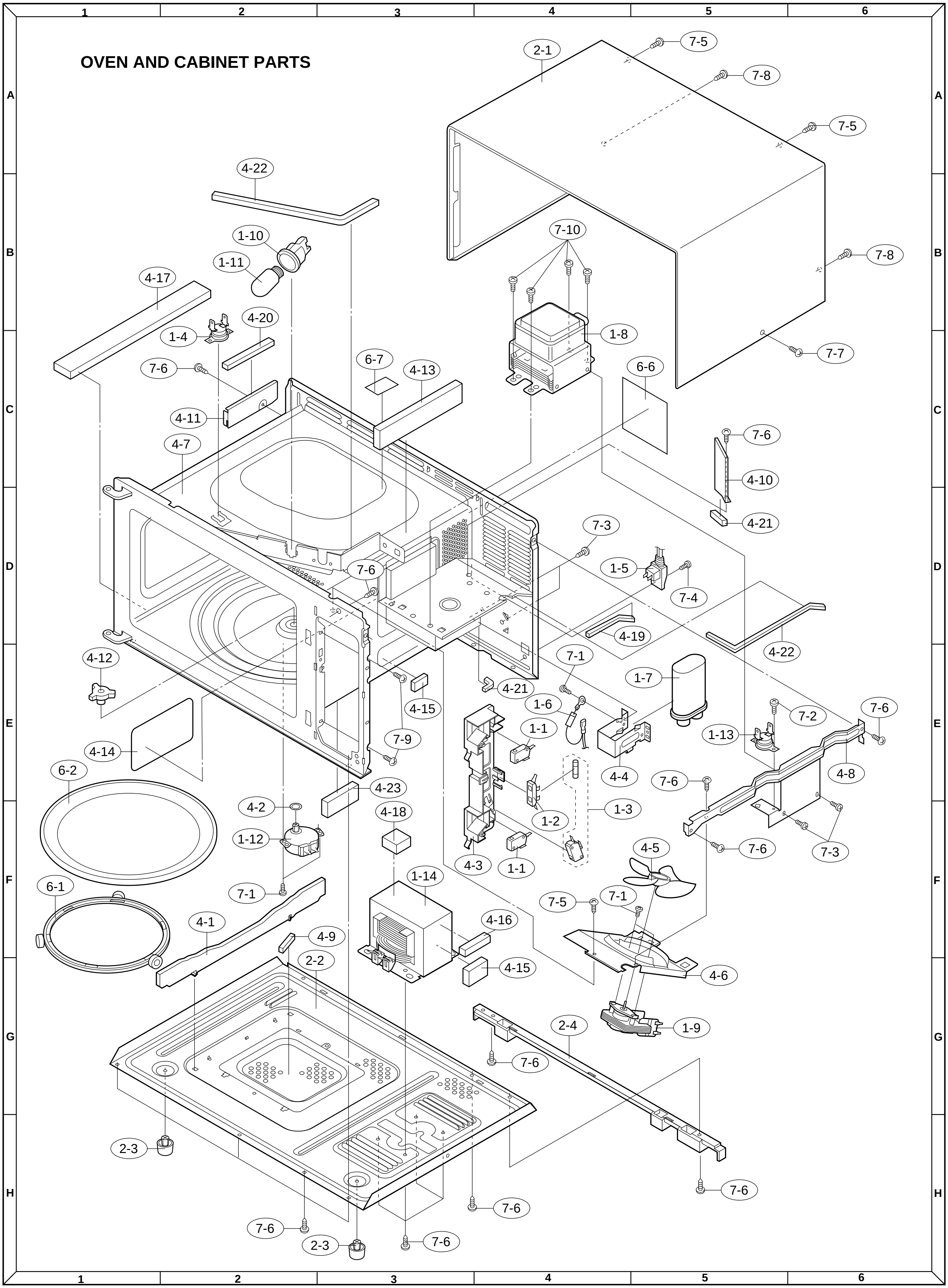
HOW TO ORDER REPLACEMENT PARTS

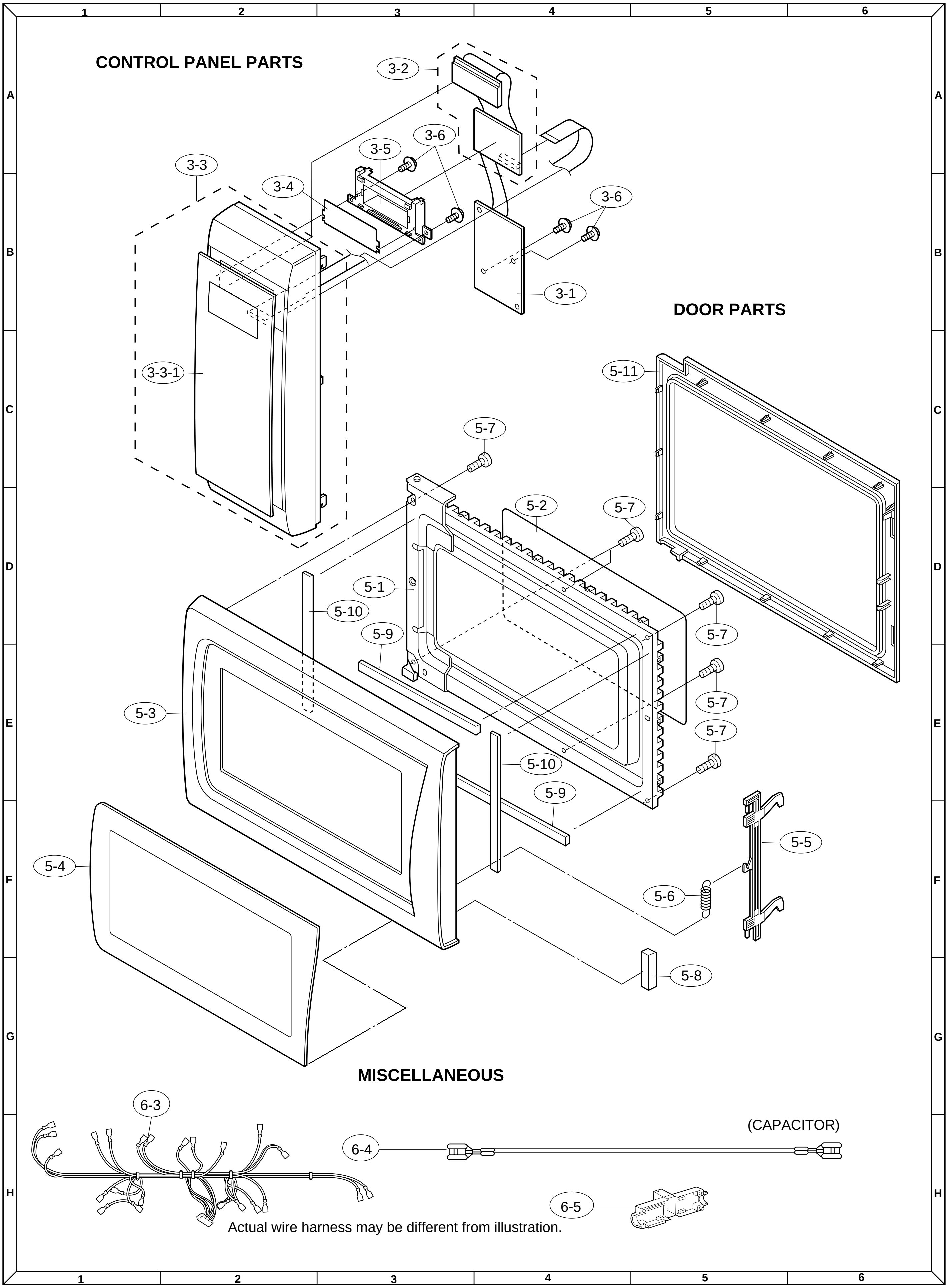
To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

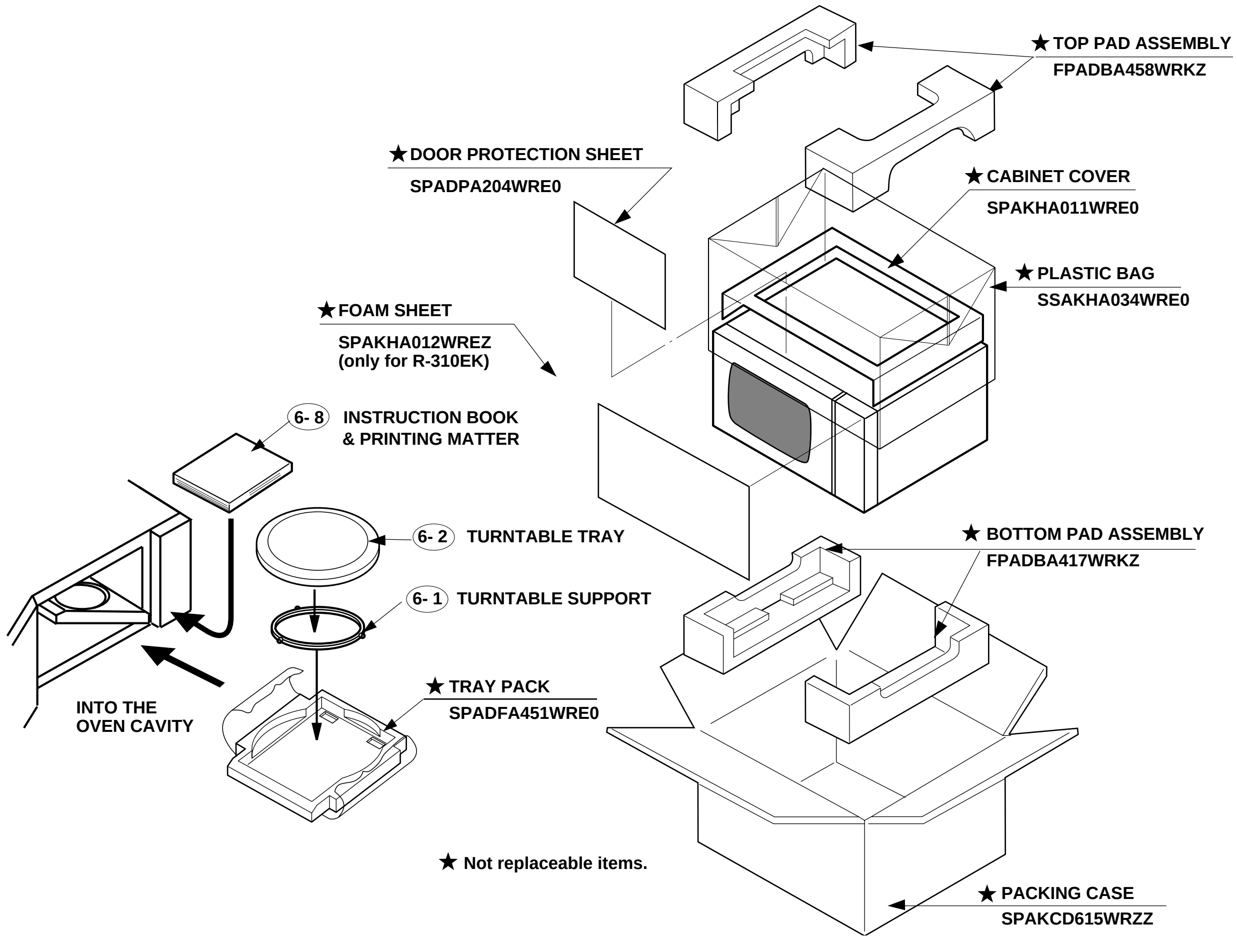
Order Parts from the authorized SHARP parts Distributor for your area.
Defective parts requiring return should be returned as indicated in the Service Policy.

OVEN AND CABINET PARTS




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MISCELLANEOUS
6-3
(CAPACITOR)
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Actual wire harness may be different from illustration.

PACKING AND ACCESSORIES



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